

524,547

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 February 2004 (26.02.2004)

PCT

(10) International Publication Number
WO 2004/016645 A1

(51) International Patent Classification⁷: C07K 1/107, 1/10

(21) International Application Number:

PCT/CA2003/001233

(22) International Filing Date: 15 August 2003 (15.08.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2,398,213

15 August 2002 (15.08.2002) CA

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

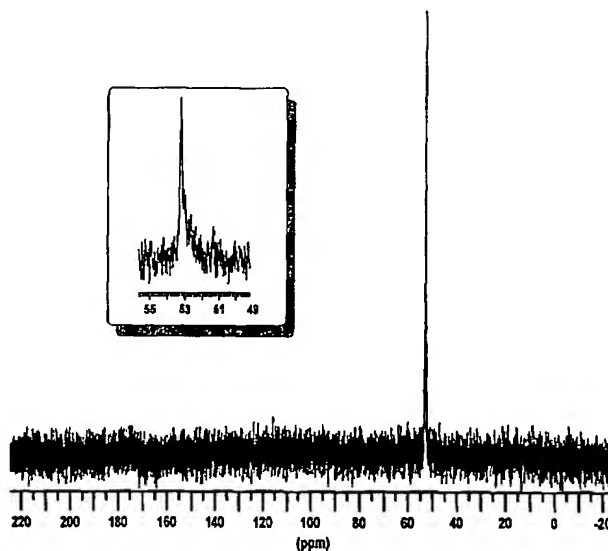
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: IN VACUO GLYCATION OF PROTEINS



(57) **Abstract:** It has been discovered that facile glycation of proteins can be achieved by colyophilization of a protein with a reducing sugar, subjecting the lyophilized mixture to a vacuum (10 to 50 millitorr) and incubating at an elevated temperature (50 to 100°C) for 1 to 24 h. A stable ketoamine derivative is formed with amino groups in the protein and no advanced glycation end products (browning reaction) are observed, as is the case with aqueous glycation procedures. Another novel feature is that the in vacuo glycation reaction takes place with the protonated amine and not the deprotonated amine as is believed to be the case for aqueous glycation reactions. Advantage can be taken of the in vacuo glycation reaction to achieve facile covalent cross-linking of proteins by lyophilizing protein or proteins with compounds containing two or more reducing sugars separated by a linker.

WO 2004/016645 A1